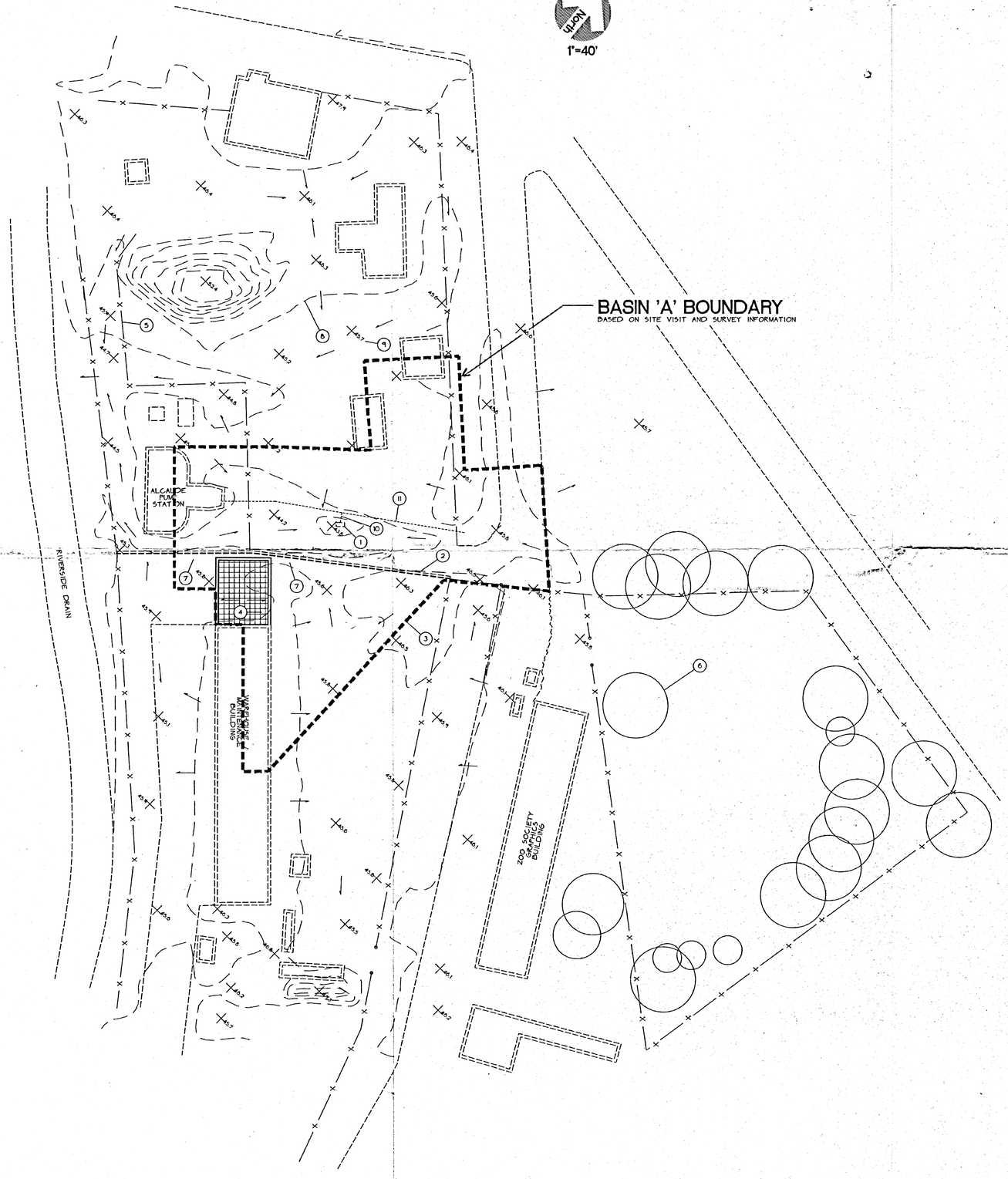


SCOPE:
The proposed improvements include a 2000 SF warehouse addition to an existing building.

The present site is a developed commercial site with existing buildings and asphalt parking area.

The intent of this plan is to show:

- Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.
- The extent of proposed site improvements, including buildings, walks and pavement.
- The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City of Albuquerque requirements for drainage management.
- The relationship of on-site improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

DRAINAGE PLAN CONCEPT: Other than fine grading around the proposed addition to maintain the flow paths to the existing catch basin (keyed note #1), there will be no additional grading on site. The calculations show the existing catch basin and 24" rcp have more than adequate ability to accept additional flows.

GENERAL NOTES:
LEGAL: A Portion of the Rio Grande Zoo.

SURVEYOR: Aerial Photography with Contours by Koogle Pouls Engineering, Inc.

B.M.: 10-J13 Located at the junction of San Pasquale Ave. and Old Town Rd. in the SE quadrant of the Intersection. A 6 0 Penny nail in electric powerline pole #215 ELEVATION = 4957.175.

T.B.M.: Top of Existing Double "D" Catch Basin grate. Elevation = 4943.8.

OFF-SITE DRAINAGE: There is no Off-Site drainage which affects this site.

EROSION CONTROL: The contractor is responsible for retaining on-site all sediment generated during construction by means of temporary earth berms or silt fences at the low points on the west property line.

CALCULATIONS:
Calculations are based on the Drainage Design Criteria for Albuquerque, NM, Section 22.2, DPM, Vol 2, dated Jan., 1993

AREA OF SITE (DEFINED AS BASIN A): 42000 SF = 0.96 Ac.

ON-SITE

DEVELOPED FLOWS:
On-Site Land Condition

Area a =	5700	SF
Area b =	0	SF
Area c =	10500	SF
Area d =	25800	SF
Total Area =	42000	SF

HISTORIC FLOWS:
On-Site Historic Flow Rate

Area a =	5700	SF
Area b =	0	SF
Area c =	12500	SF
Area d =	23800	SF
Total Area =	42000	SF

EXCESS PRECIPITATION:
Precip. Zone 2

Ea =	0.53
Eb =	0.78
Ec =	1.13
Ed =	2.12

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E = $\frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$

Proposed E =	1.66 in.	Historic E =	1.61 in.

On-Site Volume of Runoff: V360 = $\frac{E' A}{12}$

Proposed V360 =	5799 CF	Historic V360 =	5634 CF

On-Site Peak Discharge Rate: Qp = QpaAa+QpbAb+QpcAc+QpdAd / 43,560
For Precipitation Zone 2

Qpa =	1.56	Qpc =	3.14
Qpb =	2.28	Qpd =	4.70
Proposed Qp =	3.7 CFS	Historic Qp =	3.7 CFS

An increase of 0.1 CFS

STORM DRAIN INLET CAPACITY (EXISTING)
From City of Albuquerque As-Built information entitled: Alcalde Storm Water Pumping Station and Collection System and from site visits, the Double "D" Catch Basin has the following characteristics.
Q = CA(2gh)^0.5 Where C = 0.6
A = 8.6
g = 32.2
h = 2

Q (capacity) =	58.6	cfs	
Q (less 20%) =	46.8	cfs	20% reduction factor for debris
Q (required) =	3.7	cfs	OK

24" RCP from Catch Basin to existing 66" R.C.P. can carry approx. 13 cfs OK

RECEIVED
AUG 15 1994
HYDROLOGY DIVISION

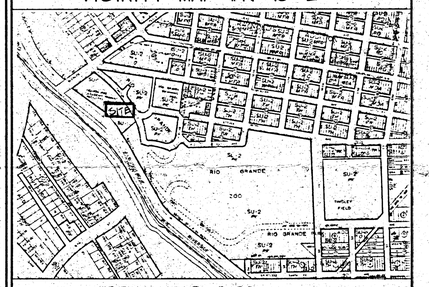
KEYNOTES

1. EXISTING STORM DRAIN DOUBLE "D" CATCH BASIN. RIM ELEV. = 4944.00, 24" RCP INC. ELEV. = 4937.71
2. EXISTING SITE FEATURE TO REMAIN (TYPICAL)
3. BOUNDARY OF BASIN 'A' DRAINING TO EXISTING CATCH BASIN (SEE KEYED NOTE #1)
4. PROPOSED WAREHOUSE ADDITION. ROOF SHEDS FLOWS AS INDICATED BY FLOW ARROWS. FINISHED FLOOR ELEVATION TO MATCH EXISTING (APPROX. 4946.54).
5. EXISTING CHAIN LINK FENCE (TYPICAL)
6. EXISTING TREES (TYPICAL)
7. FINE GRADE THIS AREA TO ALLOW RUNOFF TO ACCESS CATCH BASIN.
8. EXISTING GRADE CONTOUR (TYPICAL)
9. EXISTING GRADE SPOT ELEVATION (TYPICAL)
10. EXISTING 24" R.C.P. STORM DRAIN (APPROX. LOCATION)
11. EXISTING 66" R.C.P. STORM DRAIN (APPROX. LOCATION)

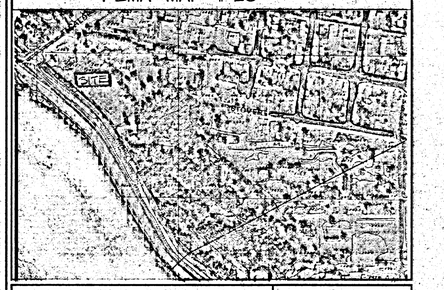
ON THE WEEK OF AUGUST 8, 1994 I INSPECTED A PORTION OF THE RIO GRANDE ZOO BERNALILLO COUNTY, NEW MEXICO. AT THAT TIME, IT APPEARED THAT NO GRADING, FILLING OR EXCAVATION HAD OCCURRED THEREON SINCE THE PREPARATION OF THE EXISTING CONTOUR MAP USED IN THE PREPARATION OF THIS PLAN.

CHRISTOPHER L. WEISS — DATE 8/16/94

VICINITY MAP #K-13-Z



FEMA MAP # 28



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CHRISTOPHER L. WEISS — 14 — REGISTERED PROFESSIONAL ENGINEER

Revisions

RIO GRANDE ZOO
WAREHOUSE ADDITION

Scale:	Drawn By:	Checked By:	Job Number:	Date:
1" = 20'	BJB	CLW		AUGUST 1994

DRAINAGE AND GRADING PLAN

C-1
SH. 1 OF 1

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